THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 24

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JAY C. HSU

Appeal No. 1999-0700
Application No. 08/590,580

ON BRIEF

Before CALVERT, COHEN, and BAHR, Administrative Patent Judges.

BAHR, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1-23, which are all of the claims pending in this application.

BACKGROUND

The appellant's invention relates to a process for the preparation of absorbent materials from recycled fiber sludge, an absorbent material prepared by the process and a method of absorbing using the absorbent material. An understanding of the invention can be derived from a reading of exemplary claim 1, which appears in the appendix to the appellant's brief.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Kok	4,374,794	Feb. 22, 1983
Fleischer et al. (Fleischer)	4,621,011	Nov. 4, 1986
Clements Jr. et al. (Clements)	5,085,175	Feb. 4, 1992

Additional references of record relied upon by this panel of the Board are:

Lowe et al. (Lowe)	4,721,059	Jan. 26, 1988[1]
Knapick et al. (Knapick) (published international application)	WO 95/07384	Mar. 16, 1995[2]

The following rejections are before us for review.

1. Claims 19-23 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which appellant regards as the invention.

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[1] A copy of this reference was cited by the appellant in Paper No. 2 and a copy is of record in the application file.

[2] A copy of this reference was cited by the appellant in Paper No. 7 and a copy is of record in the application file.

2. Claims 1-4, 6-8 and 10-23 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Kok.

3. Claims 1-4, 6-8 and 10-23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kok.

4. Claim 5 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kok, as applied to claims 1-4, 6-8 and 23 above, and further in view of Clements.

5. Claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kok, as applied to claims 1-4, 6-8 and 23 above, and further in view of Fleischer.

Reference is made to the brief (Paper No. 20) and the final rejection and answer (Paper Nos. 5 and 21) for the respective positions of the appellant and the examiner with regard to the merits of these rejections.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims, to the applied prior art references, and to the respective positions articulated by the appellant and the examiner. As a consequence of our review, we make the determinations which follow.

The indefiniteness rejection

In rejecting claims 19-23 under the second paragraph of 35 U.S.C. § 112, the examiner states

> applicant is claiming "a method of absorbing a liquid" in the preamble of the claim. However, the [sic] most of the steps (i.e., steps (b) and (c)) recited in the body of the claim are directed towards the process of forming the pellets which are used to carry out the method of absorbing a liquid. Thus it is not clear what method would or would not infringe the claimed method of absorbing [answer, page 4].

The examiner also contends that the apparent utilization of product by process language is inappropriate and creates confusion about what is included in the scope of the preamble (final rejection, page 2).

As correctly pointed out by the appellant (brief, page 5), a claim which recites a product by listing the process steps used to obtain it, commonly referred to as a product-by-process claim, does not inherently conflict with the second paragraph of 35 U.S.C. § 112. That method of claiming is a perfectly acceptable one so long as the claims particularly point out and distinctly claim the product or genus of products for which protection is sought and satisfy the other requirements of the statute. In re Brown, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972). Claims 19-23 are directed to a method of absorbing liquid comprising the step of contacting the liquid with an absorbent material and recite the absorbent material by listing the process steps used to obtain it. As we see it, these claims are clearly directed to a method of absorbing liquid comprising a single step of contacting liquid with an absorbent material. The additional process steps referred to by the examiner further limit or describe the absorbent material used in the method. As the second paragraph of 35 U.S.C. § 112 does not prohibit single step methods and as the examiner has not pointed to any reason why the product-by-

process limitations of the claim fail to adequately define the absorbent article which is contacted with a liquid in the claimed method step, we are not persuaded that the utilization of product-by-process limitations renders the scope of the claims indefinite.

Accordingly, we shall not sustain the examiner's rejection of claims 19-23 under the second paragraph of 35 U.S.C. § 112.

The anticipation rejection

Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention. RCA Corp. v. Applied Digital Data Sys., Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984). In other words, there must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention. Scripps Clinic & Research Found. v. Genentech Inc., 927 F.2d 1565, 1576, 18 USPQ2d 1001, 1010 (Fed. Cir. 1991). It is not necessary that the reference teaches what the subject application teaches, but only that the claim reads on something disclosed in the reference, i.e., that all of the limitations in the claim be found in or fully met by the reference. Kalman v. Kimberly Clark Corp., 713 F.2d 760, 772, 218 USPQ 781, 789 (Fed. Cir. 1983), cert. denied, 465 U.S. 1026 (1984).

Kok discloses a process for the preparation of a liquid absorbing material from "fibrous waste sludge" comprising the steps of partially dewatering the waste sludge to yield a semi-dry

mass having a water content from 40 to 80%, preferably 55 to 65%, by weight, forming the fibrous mass into a pelletized configuration and drying the pellets (abstract and column 2, lines 57-66). The sludge used as the starting material in Kok's process is fiber-containing wet waste water "derived from a process in which fibers consisting wholly or substantially of cellulose are produced, as is customary, in the manufacture of paper, pulp and board" (column 2, lines 26-31).

The only disputed difference between the appellant's claimed invention and Kok is the starting material used to produce the absorbent material. The starting material in the claimed invention is "recycled fiber sludge," which is clearly defined on page 5 of appellant's specification as "primary compressible waste solids discharged from a dewatering device in a plant, for example, a tissue-grade deinking mill, that processes waste paper into recycled fiber." While Kok generally discloses the use of sludge from waste water derived from the manufacture of paper, pulp or board, Kok does not specifically disclose the use of waste solids from waste water in a plant that processes waste paper into recycled fiber.

The examiner (answer, page 4) has taken the position that the definition of "recycled fiber sludge" set forth in appellant's specification is not read into the claims and that, under the broadest reasonable interpretation, "recycled fiber sludge" includes cellulosic fiber waste sludge generally. In other words, the examiner does not interpret "recycled fiber sludge" as being limited to sludge derived from waste water in a waste paper recycling plant.

The Patent and Trademark Office applies to the verbiage of the claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification. In re Morris, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997). Moreover, an applicant can be his own lexicographer provided the applicant's definition, to the extent it differs from the conventional definition, is clearly set forth in the specification. Beachcombers Int'l, Inc. v. Wild Wood Creative Prods., Inc., 31 F.3d 1154, 1158, 31 USPQ2d 1653, 1656 (Fed. Cir. 1994).

In the instant case, as discussed above, the definition of "recycled fiber sludge" is clearly set forth in the appellant's specification and the examiner has erred in refusing to apply this definition in interpreting the claim language. As the standing 35 U.S.C. § 102 rejection of claims 1-4, 6-8 and 10-23 rests in part on the examiner's interpretation of "recycled fiber sludge" as including sludge from waste water derived from any paper manufacturing process, we are constrained to reverse this rejection.

The obviousness rejections

Rejections based on 35 U.S.C. § 103 must rest on a factual basis. In making such a rejection, the examiner has the initial duty of supplying the requisite factual basis and may not, because of doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction

to supply deficiencies in the factual basis. In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 177-78 (CCPA 1967). Moreover, in establishing a *prima facie* case of obviousness, it is incumbent upon the examiner to provide a reason why one of ordinary skill in the art would have been led to modify a prior art reference or to combine reference teachings to arrive at the claimed invention. See Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Int. 1985). To this end, the requisite motivation must stem from some teaching, suggestion or inference in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art and not from the appellant's disclosure. See, e.g., Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1052, 5 USPQ2d 1434, 1439 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988).

Turning first to the examiner's rejection of claims 1-4, 6-8 and 10-23 under 35 U.S.C. § 103 as being unpatentable over Kok, the examiner's only explanation as to why the subject matter of claims 1-4, 6-8 and 10-23 would have been obvious is

> [i]n any event, the teaching of Kok would clearly render the claim language obvious, if in fact it is determined not to be fully met [answer, page 5].

For the reasons discussed above, the examiner's basis for concluding that the subject matter of these claims is anticipated by Kok is tainted by the examiner's unreasonably broad interpretation of the language "recycled fiber sludge" as used in the claims. In failing to provide any reason why one of ordinary skill in the art would have been led to modify the Kok process by using "recycled fiber sludge"

as defined by the appellant as the starting material in the Kok process, the examiner has also failed to establish a *prima facie* case of obviousness of the subject matter of claims 1-4, 6-8 and 10-23.

Accordingly, we are also constrained to reverse the examiner's rejection of claims 1-4, 6-8 and 10-23 under 35 U.S.C. § 103 as being unpatentable over Kok.

Turning next to the examiner's rejection of claim 5, we have reviewed the additional teachings of Clements but find nothing therein which overcomes the above-noted deficiencies of the examiner's rejections of claims 1-4, 6-8 and 10-23 based on Kok alone. It follows then that we must also reverse the examiner's rejection of claim 5 under 35 U.S.C. § 103 as being unpatentable over Kok in view of Clements.

Finally, the examiner has rejected claim 9 under 35 U.S.C. § 103 as being unpatentable over Kok in view of Fleischer. The examiner finds that Fleischer "teaches the method of using sludge from a tissue mill to make an absorbent material" and states that "[t]here is no apparent unobviousness involved in choosing resources from any specific source vs. choosing resources from a different source" (final rejection, page 4).

Fleischer discloses the use of fibrous cellulosic waste materials, such as waste paper, newsprint, paper mill reclaimed cellulose fiber, etc., as a starting material in producing a useful product, such as animal litter (column 3, lines 26-33). The disclosed process includes the steps of agglomerating a moist blend of the fibrous material to form individual agglomerated particles, compacting the surface of the

agglomerated particles to form a densified skin substantially free of protruding fiber ends and fibrils and drying the agglomerated particles. For example, shredded waste paper or smaller material, such as reclaimed cellulose fiber or waste paper processed through a fine screen, is a suitable starting material (column 3, line 64, to column 4, line 2). The phrase "reclaimed cellulose fiber" as used by Fleischer is a general term which includes unused materials from primary tissue mills and other types of papermaking processes and primarily contains short cellulose fibers which have passed through the forming wire of a wet forming papermaking process (column 6, lines 14-19).

While Fleischer does disclose the use of processed waste paper and waste sludge from papermaking processes generally as starting materials in making useful product such as animal litter, Fleischer does not specifically disclose the use of "recycled fiber sludge" as used by appellant (i.e., sludge from waste water derived from a plant that processes waste paper into recycled fiber). Thus, from our perspective, Fleischer adds little to the teachings of Kok with regard to the claimed starting material and, in any event, would not have suggested the use of "recycled fiber sludge" as required by claim 9.

Accordingly, we shall also reverse the examiner's rejection of claim 9 as being unpatentable over Kok in view of Fleischer.

NEW GROUND OF REJECTION

Pursuant to our authority under 37 CFR § 1.196(b), we enter the following new ground of rejection of claims 1-4, 8-12 and 19-23.

Claims 1-4, 8-12 and 19-23 are rejected under 35 U.S.C. § 103 as being unpatentable over Kok in view of Lowe and Knapick.

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. See In re Young, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991) and In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). Indeed, a *prima facie* case of obviousness is established where the reference teachings would appear to be sufficient for one of ordinary skill in the art having those teachings before him to make the proposed combination or modification. See In re Lintner, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972). Moreover, in evaluating such references it is proper to take into account not only the specific teachings of the references but also the inferences which one skilled in the art would reasonably be expected to draw therefrom. In re Preda, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

As discussed above, Kok discloses a process for the preparation of a liquid absorbing material from "fibrous waste sludge" comprising the steps of partially dewatering the waste sludge to yield a semi-dry mass having a water content from 40 to 80%, preferably 55 to 65%, by weight, forming the fibrous mass into a pelletized configuration and drying the pellets (abstract and column 2, lines 57-66). Kok points out that the dumping of sludge from paper

and board making processes is cost prohibitive and raises concerns as to adverse effects on the environment. Therefore, the objective of Kok's invention is to provide an economical process and resultant product which permits the utilization of waste water sludge in an environmentally safe manner (column 1, lines 16-27). With particular regard to claims 11, 12 and 19-23, the resultant product is used in oil absorption applications or as animal litter material, for example (column 1, lines 64-67). The sludge used as the starting material in Kok's process is fiber-containing wet waste water "derived from a process in which fibers consisting wholly or substantially of cellulose are produced, as is customary, in the manufacture of paper, pulp and board" (column 2, lines 26-31). While Kok does disclose the use of waste water sludge derived from a paper-making process generally, Kok does not specifically disclose the use of "recycled fiber sludge" (i.e., waste water sludge derived from a plant that processes waste paper into recycled fiber).

Lowe discloses the use of either primary process sludge (i.e., the waste material from the manufacture of paper) or primary de-inked sludge (i.e., waste material from the manufacture of recycled paper such as old newsprint or packaging materials) in a process for producing cat box filler. In teaching that essentially the same method is used to treat both types of sludge to form an end product (column 2, lines 22-24), Lowe recognizes the similarity between these two types of sludge in the context of producing absorbent filler such as cat litter. The sludge is dewatered to a moisture content of

50 to 60% and then broken down or shredded, agglomerated into pellets and finally dried (see column 2, lines 9-31 and 53-66).

Knapick discloses a process for converting waste paper into tissue paper by pulping the waste paper in a hydropulper 2, washing the pulp in a washer 6, cleaning and de-inking the pulp in a de-inking station 10 and delivering the resulting pulp to a paper making machine 14 to produce tissue paper. Fibers useful in the tissue paper making process are recovered from the reject stream from the de-inking station and returned to the washer 6. The remainder of the reject stream is delivered to a flotation clarifier to separate water useful in the paper making process from the reject stream. Knapick discloses an agglomerating process for converting the material in the reject stream into industrial absorbents for oil and water and animal litter and feed as an alternative to sending the reject materials to a landfill or incinerator (page 1, line 30, to page 2, line 6).

As illustrated, for example, by Lowe and Knapick, it was well known and conventional in the paper-making art at the time of the appellant's invention to make paper using recycled waste paper. Therefore, one of ordinary skill in the art reading the Kok disclosure would have immediately envisaged the paper manufacturing processes discussed in column 2, lines 26-31, of Kok as including both primary (from virgin cellulosic fiber materials) and secondary (from recycled waste paper materials) paper manufacturing processes. Moreover, one of ordinary skill in the art would have appreciated from the combined teachings of Kok, Lowe and Knapick the suitability of primary de-inked sludge

derived from a de-inking station of a paper recycling plant for use as the "fibrous waste sludge" starting material in the process of Kok and would have been motivated to use such sludge in Kok's process in order to recycle the primary de-inked sludge in an economical and environmentally safe manner to produce a useful product rather than dumping it into landfills. As to the particular moisture content ranges recited, it would have been obvious to provide sludge having a moisture content between 55 and 65% by weight in order to facilitate the pellet forming operation, as taught by Kok (column 2, lines 54-66). Further, as Kok does not disclose breaking down or cutting the fibrous waste sludge, one of ordinary skill in the art would have inferred that such a step is not necessary in the Kok process. Therefore, to provide the de-inked sludge in "non-broken down and uncut" form as required by claims 1-4, 10-12 and 19-23 would have been obvious to one of ordinary skill in the art.

As to claim 9, as the teachings of Lowe and Knapick suggest that the sludge derived from a tissue-grade de-inking mill is suitable as a starting material in producing useful absorbent material, such as animal litter or industrial absorbents for oil and water, it would have been obvious to one of ordinary skill in the art to utilize such sludge as the "fibrous waste sludge" in the Kok process in order to avoid the cost and adverse environmental effects of sending these materials to a landfill or incinerator.

For the reasons discussed above, the combined teachings of Kok, Lowe and Knapick are sufficient to have suggested the subject matter of claims 1-4, 8-12 and 19-23 so as to establish a *prima facie* case of obviousness under 35 U.S.C. § 103.

REMAND TO THE EXAMINER

Pursuant to 37 CFR § 1.196(e), we remand the application to the examiner for consideration of the following issues:

1. Is the subject matter of claims 5-7 and 13-18 unpatentable under 35 U.S.C. § 103 over the combined teachings of Kok, Lowe and Knapick, either alone or in combination with additional prior art references? While this panel has specifically applied the teachings of Kok, Lowe and Knapick to claims 1-4, 8-12 and 19-23 in the new ground of rejection set forth above, we leave the determination of the patentability of the subject matter of the remaining claims over these references to the examiner.

2. Are any of the product-by process claims 10-18 anticipated or rendered obvious by Kok alone?

The patentability of a product does not depend on its method of production. If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process. In re Thorpe, 777 F.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir. 1985). Moreover, where a product-by-process claim is rejected over a prior art product that appears to be identical, although produced by a different process, the burden is upon the applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 799, 803, 218 USPQ 289, 292-93 (Fed. Cir. 1983). Applying this principle to claims 10-18, the examiner should consider whether the Kok product, although

perhaps made by a different process by virtue of the use of a different starting material, is similar or identical to the claimed product-by-process of claims 10-18. In other words, does the use of compressible waste solids discharged from a dewatering device in a waste paper recycling plant, the ash content of which may vary depending upon the particular plant or mill from which it is obtained (specification, pages 6 and 7), as a starting material necessarily yield, in and of itself, any materially different properties in the resultant product as compared with a product made using Kok's process from other types of sludge derived generally from a paper, pulp or board making process (e.g., primary sludge)?

3. With regard to claim 5, is a "drum pelletizer" or "disk pelletizer" as disclosed by Lowe, in column 2, lines 52-57) a "die-roller pelletizer device" as claimed? If the examiner finds that either of these pelletizers is a "die-roller pelletizer device," the examiner should consider whether the teachings of Lowe with regard to these pelletizers would have suggested the use of such pelletizers in the Kok process.

CONCLUSION

To summarize, the decision of the examiner to reject claims 19-23 under 35 U.S.C. § 112, second paragraph, claims 1-4, 6-8 and 10-23 under 35 U.S.C. § 102 and claims 1-23 under 35 U.S.C. § 103 is reversed. A new ground of rejection of claims 1-4, 8-12 and 19-23 has been entered and the application is remanded to the examiner for consideration of the issues discussed above.

This decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b) and a remand pursuant to 37 CFR § 1.196(e).

37 CFR § 1.196(b) provides, "A new ground of rejection shall not be considered final for purposes of judicial review."

37 CFR § 1.196(e) provides that

> Whenever a decision of the Board of Patent Appeals and Interferences includes or allows a remand, that decision shall not be considered a final decision. When appropriate, upon conclusion of proceedings on remand before the examiner, the Board of Patent Appeals and Interferences may enter an order otherwise making its decision final.

37 CFR § 1.196(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (37 CFR § 1.197(c)) as to the rejected claims:

> (1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner. . . .
>
> (2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and Interferences upon the same record. . . .

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

REVERSED; 37 CFR § 1.196(b); REMANDED

IAN A. CALVERT Administrative Patent Judge	)
	) BOARD OF PATENT
IRWIN CHARLES COHEN Administrative Patent Judge	) APPEALS) AND) INTERFERENCES
JENNIFER D. BAHR Administrative Patent Judge	)

JDB/sld

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